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Appendix C

NORTH AMERICAN NUMBERING COUNCIL

ARCHITECTURE & ADMINISTRATIVE PLAN FOR LOCAL NUMBER PORTABILITY

Issue 2
Revision 0

NANC – Local Number Portability
Administration Working Group
Wireless Wireline Integration Task Force

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1. LOCAL NUMBER PORTABILITY OVERVIEW

On June 27, 1996, the FCC ordered the phased implementation of Local Number Portability (LNP). A subsequent First Memorandum Opinion And Order on Reconsideration was adopted on March 6, 1997 and released on March 11, 1997.

LNP is defined in the Telecommunications Act of 1996 as "the ability of users of telecommunications services to retain, at the same location, existing telecommunications numbers without impairment of quality, reliability, or convenience when switching from one telecommunications carrier to another." The primary elements of the order are as follows:

- All LECs are required to begin the implementation of a long term LNP solution in the 100 largest Metropolitan Statistical Areas (MSAs). Implementation of a LNP trial will begin in the Chicago, Illinois MSA, with the implementation in remaining MSAs beginning October 1, 1997. The FCC has mandated that implementation in the top 100 MSAs will be complete by December 31, 1998.
- After December 31, 1998, each LEC must make long term number portability available in smaller MSAs within six months after a bonafide request by another telecommunications carrier.
- All cellular, broadband PCS, and covered SMR (Specialized Mobile Radio) providers are required to have the capability of delivering calls to ported numbers anywhere in the country by December 31, 1998, and to offer number portability including support for roaming, throughout their networks by June 30, 1999.

On August 14, 1997 the Commission released a Second Report and Order addressing various long-term number portability implementation issues. The Order adopted, with minor modifications, recommendations submitted to the Commission by the North American Numbering Council (NANC). The Commission intent was to give carriers clear guidelines on long-term number portability implementation before the first phase of number portability deployment begins on October 1, 1997.

Among the actions taken in the 2nd Report & Order:

- Seven number portability database regions be established coinciding with the boundaries of the seven original Bell Operating Company (BOC) regions.
- Lockheed Martin IMS and Perot Systems, Inc.[1] would serve as the administrators for the regional number portability databases.
- NANC's proposed technical and operational standards for the provision of number portability by wireline carriers, including the requirement that the carrier immediately

[1] Subsequent to the endorsement of the two LNP administrators in the Second Report & Order, the LLC's contracts with Perot Systems Inc. were terminated in February 1998 and Lockheed Martin IMS became the administrator in seven LNP regions. At the time of this report, Canada was re-considering its intention of using Perot Systems as the LNP administrator for Canada.

preceding the terminating local exchange carrier (LEC) be responsible for ensuring that number portability databases are queried, were accepted.

- NANC was directed to develop standards and procedures regarding the provision of number portability by commercial mobile radio service (CMRS) providers.
- The Commission adopted, on an interim basis, the NANC's recommendation that the regional limited liability companies (LLCs), already established by carriers in each of the original BOC regions, manage and oversee the local number portability administrators, subject to review by the NANC.
- NANC would provide national oversight of local number portability administration. Noting that the NANC's expertise is critical to addressing future issues regarding number portability deployment, the Commission said that parties should first attempt to resolve deployment issues among themselves and, if necessary, under the auspices of the NANC.
- A committee, to be chaired by the Chief of the Common Carrier Bureau was established to oversee number portability deployment in the top 100 markets.

2. SERVICE PROVIDER BUSINESS DOMAIN IMPACT

LNP touches every aspect of a Service Provider's business domain. Changes in business processes and their support systems are required to implement LNP. Also, major changes in call processing are required in the network. Figure 1 is a high level illustrative view of the business and network systems that are impacted.

The initial release of this specification was developed primarily from a wireline number portability perspective. The current release incorporates wireless number portability requirements. Future modifications may be required in order to incorporate new requirements identified for either wireline and wireless portability, or both.

3. IXC BUSINESS DOMAIN IMPACT

The Interexchange Carriers (IXCs) will have many of the same change impacts that the Service Provider business entities have. Impacts to call processing, their business processes and their support systems are required to implement LNP.

4. HIGH LEVEL LNP PROCESS VIEW (*for Illustration)*

LOCAL NUMBER PORTABILITY

Figure 1

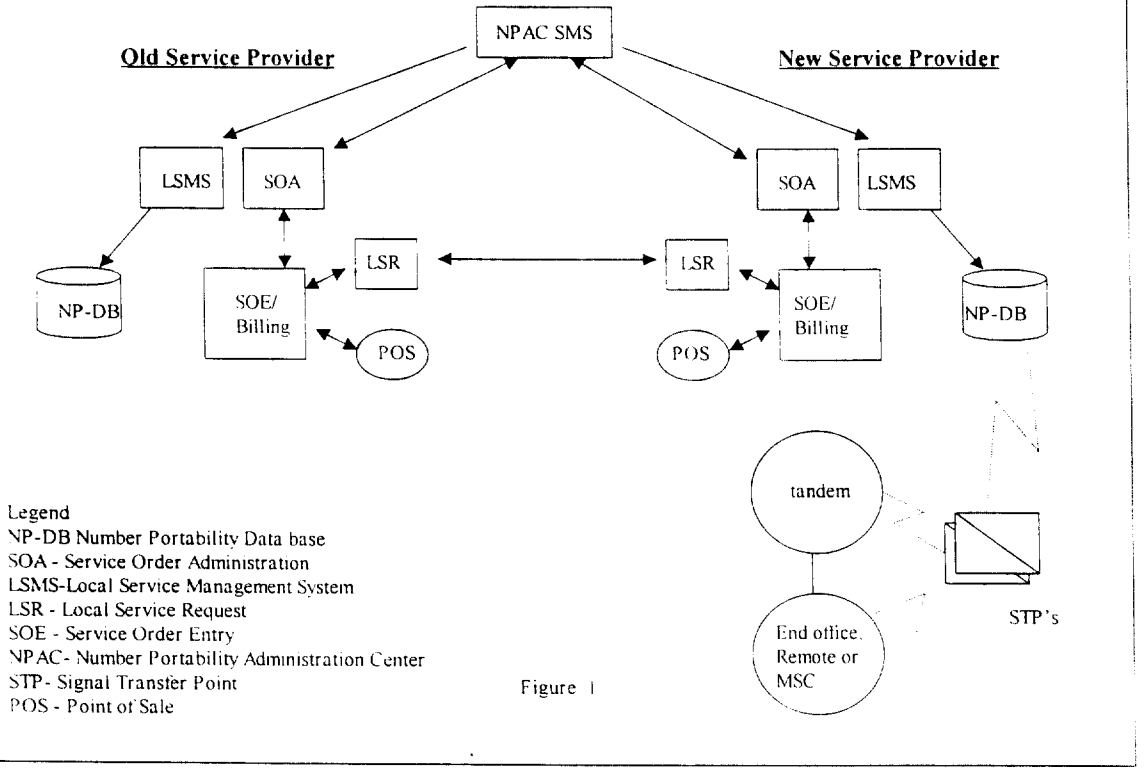

Figure 1

5. LNP HISTORY

The Illinois Commerce Commission (ICC) took the lead in July 1995 as the first state to address LNP. Four different LNP architectures were being reviewed by the ICC LNP workshop. The workshop selected AT&T's LRN solution for LNP during September 1995.

In the main ICC LNP workshop on November 16, 1995, all switch vendors present indicated that they could provide LNP software capabilities based upon the Illinois specifications by 2Q97. The switch vendors present were AT&T Network Systems (now Lucent), Nortel, Siemens, and Ericsson. The issue of vendors being able to provide LNP was resolved and the planned date for LNP implementation in Chicago was established for 2Q97. This date was changed by the FCC Order, which called for LNP testing during 3Q97 leading to full implementation in 4Q97.

On July 2, 1996, in its First Report and Order and Further Notice of Proposed Rulemaking in CC Docket No. 95-116, the FCC directed the North American Numbering Council (NANC) to make several specific determinations regarding the selection of NPAC vendors, the overall national architecture, and technical specifications for regional databases. The NANC established the LNPA Selection Working Group and two *task forces*, including the LNPA Architecture Task Force, to review and make recommendations on these issues. The LNP Architecture Task Force developed the LNPA Architecture & Administrative Plan, which was forwarded to the FCC on May 1, 1997, as an attachment to the LNPA Selection Working Group Report. This report made recommendations concerning LNP architecture, including endorsing a regional NPAC structure. The report and attachments were released by the FCC for public comment followed by release of the LNP Second Report and Order in CC Docket No. 95-116, on July 27, 1997. In this order, the FCC adopted all of the recommendations made in the LNPA Selection Working Group Report, including those contained in the LNP Architecture & Administrative Plan, Issue 1, Revision 3, April 25, 1997.

Section 7, Future Role, of the LNPA Selection Working Group Report outlined seven (7) areas relating to future LNP implementation activities, including integration of wireless into LNP. This was necessary as the original report was developed from a wireline only perspective. In June 1997, the LNPA Selection Working Group established a subgroup to develop a work plan for accomplishing the integration of wireless into LNP, as well as to address several other of the areas defined in the Future Roles section of the report. This activity lead to the formation of the Wireless and Wireline Integration Task Force (WWITF) which was established to make recommendations on the following areas from the FCC's Second Report and Order:

- Modifications to the NANC Functional Requirements Specifications (FRS), which defines the requirements for the NPAC SMS, as necessary, to support wireless number portability[2]

- Modifications to the NANC Interoperability Specifications (IIS), which defines the requirements for the mechanized interfaces with the NPAC, as necessary, to support wireless number portability[3]

- Monitor industry efforts to develop technical solutions for implementing wireless number portability[4]

[2] Second Report and Order in CC Docket No. 95-116, Paragraph 61
[3] Id. at Paragraph 64
[4] Id. at Paragraph 92

- Develop wireless recommendations to the FCC no later than nine (9) months after release of the Second Report and Order (i.e., May 18, 1998)[5]

The WWITF, which meets monthly or more frequently if needed, is open to all concerned parties and is representative of all segments of the telecommunications industry.

6. PERFORMANCE CRITERIA

The FCC adopted in its original order the following minimum performance criteria. Any long-term number portability method, including call processing scenarios or triggering, must:

(1) support existing networking services, features, and capabilities;
(2) efficiently use numbering resources;
(3) not require end users to change their telecommunications numbers;
(4) Deleted[6]
(5) not result in unreasonable degradation in service quality or network reliability when implemented;
(6) not result in any degradation of service quality or network reliability when customers switch carriers;
(7) not result in a carrier having a proprietary interest;
(8) be able to accommodate location and service portability in the future; and
(9) have no significant adverse impact outside the areas where number portability is deployed.

The FCC added in the Second Report and Order that wireless nationwide roaming must be maintained. In order to accomplish this criterion, certain mandatory network upgrades are required for those wireless carriers, which process Mobile Identification Numbers (MINs). These wireless carriers must be able to associate a MIN with the specific Mobile Directory Number (MDN), whether the number has been ported or not. Failure to implement these upgrades throughout the industry in a consistent manner would adversely effect various services, such as, billing of toll calls, calling number display, and E911. These changes may not required by those wireless carriers utilizing IMSI numbering resources, such as, Global System for Mobile Communications (GSM) based wireless carriers.

[5] Id, at Paragraph 91

[6] Item (4) was deleted in the First memorandum Opinion and Order on Reconsideration adopted March 6, 1997 and released on March 11, 1997.

7. LNP ASSUMPTIONS

7.1 Service Provider Definition

In the context of LNP, a Service Provider is a facility (switched) based[7] local exchange carrier or CMRS provider certified or licensed by the appropriate regulatory body or bodies.

7.2 LRN -- Location Routing Number

LRNs are 10 digit numbers that are assigned to the network switching elements (Central Office - Host and Remotes as required) for routing of calls in the network. The first six digits of the LRN will be one of the assigned NPA NXX of the switching element. The purpose and functionality of the last four digits of the LRN have not yet been defined, but are passed across the network to the terminating switch.

7.3 LNP Wireline Portability Boundary

If location portability is ordered by a state commission in the context of Phase I implementation of LRN, location portability is technically limited to rate center/rate district boundaries of the incumbent LEC due to rating/routing concerns. Additional boundary limitations, such as the wire center boundaries of the incumbent LEC may be required due to E911 or NPA serving restrictions and/or regulatory decisions.

7.4 NPAC LNP Databases Content

The NPAC LNP database contains only ported numbers and the associated routing and service provider information.

7.5 Line Information Data Base (LIDB) And Custom Local Access Signaling Services (CLASS)

The new service provider has the responsibility to populate the appropriate LIDB and CLASS information associated with the ported telephone number.

7.6 Line Based Calling Cards

When a telephone number is ported the non-proprietary line based calling card number will be deactivated by the old service provider and may be activated by the new service provider offering a line based calling card service. There are currently billing fraud and other technical concerns with non-proprietary line based credit cards which limit their provision to the new service provider. If the new service provider does not offer a non-proprietary line based calling card, the customer is not precluded from obtaining a proprietary line based card from another service provider.

[7] The term facility based is used in this document to describe carriers who own or lease switching equipment.

7.7 Porting of Reserved & Unassigned Numbers[8]

7.7.1 Reserved Numbers

Telephone numbers that are reserved for a customer under a legally enforceable written agreement should be ported when the customer changes service providers.

1) Reserved numbers that have been ported must be treated as disconnected telephone numbers when the customer is disconnected or when the service is moved to another service provider and the reserved numbers are not ported to subsequent service providers;
2) Reserved numbers that are ported may not be used by another customer;
3) Implementation of the capability to port reserved numbers may require modifications to operation support systems and may not be available initially.

7.7.2 Unassigned number/Unreserved

Service Providers will not port unassigned numbers unless and until there is an explicit authorization for such porting from a regulator with appropriate jurisdiction.

7.8 N-1 Call Routing

Each designated N-1 carrier is responsible for ensuring queries are performed on an N-1 basis where "N" is the entity terminating the call to the end user, or a network provider contracted by the entity to provide tandem access. Examples of N-1 routing are found in **Attachment A.**

7.9 Disconnected Telephone Numbers (Snap-back)

When a ported number is disconnected, that telephone line number will be released (Snap-back), after appropriate aging, back to the original Service Provider assigned the NXX in the LERG.

7.10 Default Routing Overload and Failures

Unless specified in business arrangements, carriers may take carrier specific action to block default routed calls incoming to their network in order to prevent imminent overload, congestion, or failure propagation that are caused by the defaulted calls. In general, overload conditions, a carrier may take network management controls that limit call attempts for all service providers (eg: call gapping).

7.11 Number Pooling

The FCC Order on LNP provided no explicit guidance on number pooling. Various industry activities are underway addressing this issue and Number Pooling is outside the scope of this Task Force.

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[8] It will be the responsibility of the service provider receiving the ported reserved telephone numbers to provision their network elements so that appropriate treatment by the recipient switch is provided which suppresses cause code 26 release messages for the ported reserved telephone numbers only.

7.12 NPAC to LSMS Architectural Restrictions

All networks will rely on the NPAC database as the ultimate source of porting data. Synchronization of networks to a single set of routing data is paramount to network operations. Therefore appropriate restrictions must be placed upon how these network elements may interconnect from an architectural perspective.

Specifically, the NPAC shall download relevant porting data required by participating carriers or their agents for the specific subset of network nodes. Consequently, the NPAC system shall be the source of all porting data for all carriers or agents of those carriers; thereby being the sole originator of all downloads.

As a result of these restrictions, the LSMS must operate as the intermediate database management system, which receives, downloads from the NPAC, and then further downloads directly to the appropriate SCP functionality in its associated network(s).

Through this architecture, it is intended that if a systems provider is performing a service management functionality, then this systems provider is responsible for contributing its appropriate share of the economic support (as determined via regulatory actions on cost allocation) to the NPAC. The local SMS architecture must not allow service providers to avoid their allocation of the shared NPAC costs. Such architecture does not preclude the implementation of the LSMS functionality in a distributed manner in an individual service provider's network.

7.13 High Volume Call In Numbers (Choke Network)

An area of concern regarding LNP is High Volume Call In (HVCI) networks. When a carrier determines that a customer regularly generates large volumes of terminating traffic, the customer may be moved over to an HVCI network. Examples of these types of customers could be radio stations that regularly hold contests that require many participants to call in a short period of time. An HVCI network allows all such customers to be assigned numbers in an NPA-NXX (e.g., 213-520) dedicated for HVCI. This HVCI number is the number that is announced for any high call in event. Switches in the area can be designed to segregate traffic for HVCI numbers and route it via trunk groups that are dedicated to the network and do not overflow to other trunk groups. The dedicated trunks are engineered to handle limited traffic and, in this way traffic is throttled and cannot congest the network. Such networks have proven to be effective in limiting the effects of large call in events.

However, with LNP before route selection takes place a database query is performed on calls to portable NPA-NXXs. If HVCI numbers are portable, they can generate large volumes of queries that can congest the signaling links and SCPs. Also if the HVCI number is ported and an LRN is returned in the database response, the call will not be routed via HVCI-dedicated trunks. The LNPA working Group addressed the issues surrounding porting of HVCI numbers from October 1997 through February 1998 and

provided a recommendation to the NANC in a report dated February 18, 1998. The recommendation included a process that uses a dedicated choke trunk group from the ILEC choke serving office using either a pseudo NXX code or route indexing to deliver calls to the service Provider's end office. In addition, the report included the following three conditions for information:

1. The report allows for requests for modifications to this process based on evidence that it fails to meet FCC performance criteria for LNP
2. Service Providers are responsible for the provision of network facilities on their side of the interconnection point from the choke trunk groups to the choke serving office
3. To conserve numbering resources, a request will be made to the Industry Numbering Committee (INC) to develop a plan to share existing and future HVCI numbering resources.

For complete details of the agreement see Section 3 of the LNPA Working Group High Volume Call-In Network report to NANC dated February 18, 1998.

7.14 Wireless/Wireline LNP Technical Assumptions

COMMON:

1. In the context of Service Provider Portability the NPA-NXX is associated with a single rate center.
2. Call rating to the caller is based upon the NPA-NXX of the called TN.

WIRELINE PORTING:

1. A wireline subscriber's physical location must be in the same Rate Center as defined by the wireline subscriber's NPA-NXX.
2. When porting to a wireline service provider. Common #1 above still applies.

WIRELESS PORTING:

1. Wireless subscriber's physical location may be different than the Rate Center defined by the NPA-NXX.
2. Porting to a wireless service provider can occur as long as the rate center associated with the porting TN is geographically located within the serving area of the ported to Wireless Service Provider and the Wireless Service Provider has or establishes a business or interconnect arrangemnet for incoming calls to the ported TN.

8. LNP Call Scenarios - Local to Local View

LNP call scenarios on Service Provider Portability are shown in Figure 2. See additional scenarios in Attachment A for N-1 Call Routing.

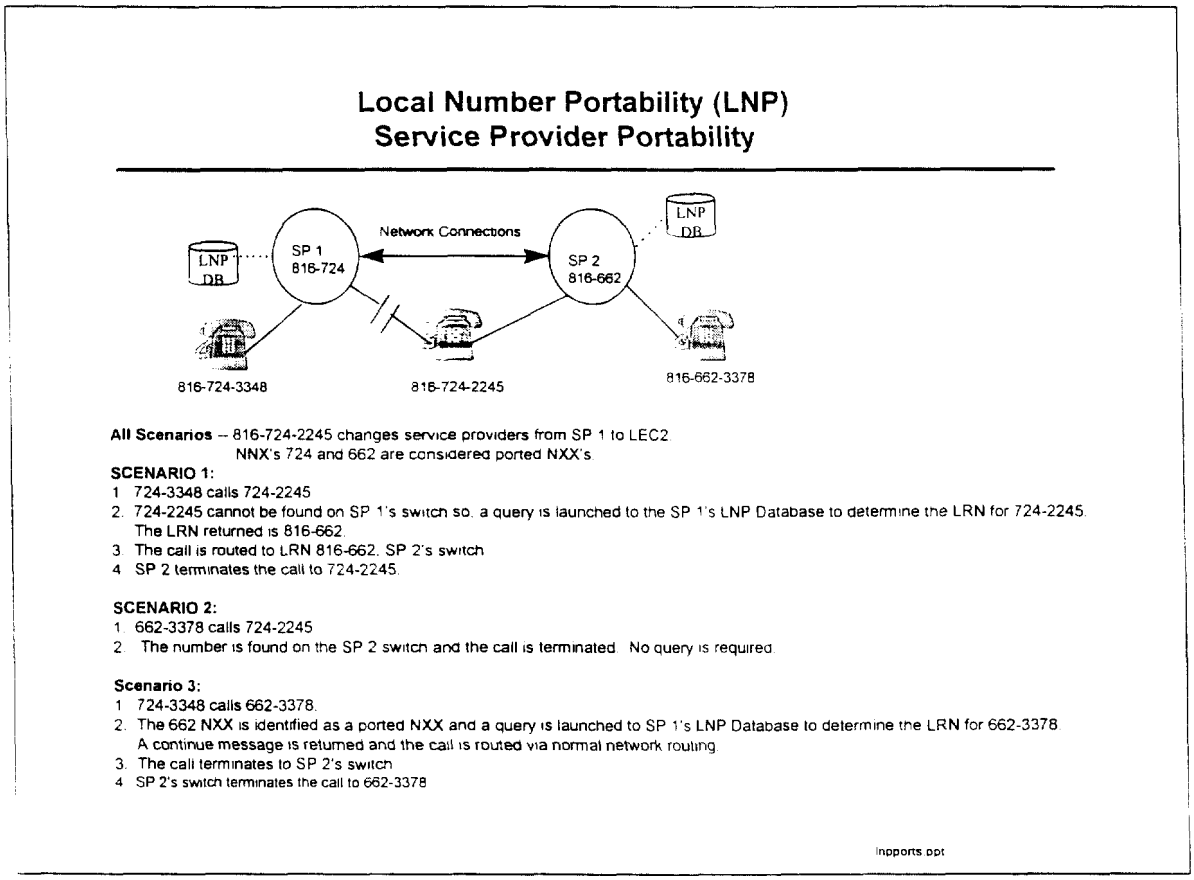

Figure 2

9. NPAC Regions

The following number of Number Portability Administration Center (NPAC) regions, their geographic coverage areas, and the NPAC assignment of Canada and the U.S. Caribbean are shown in Figure 3 and Chart 1:

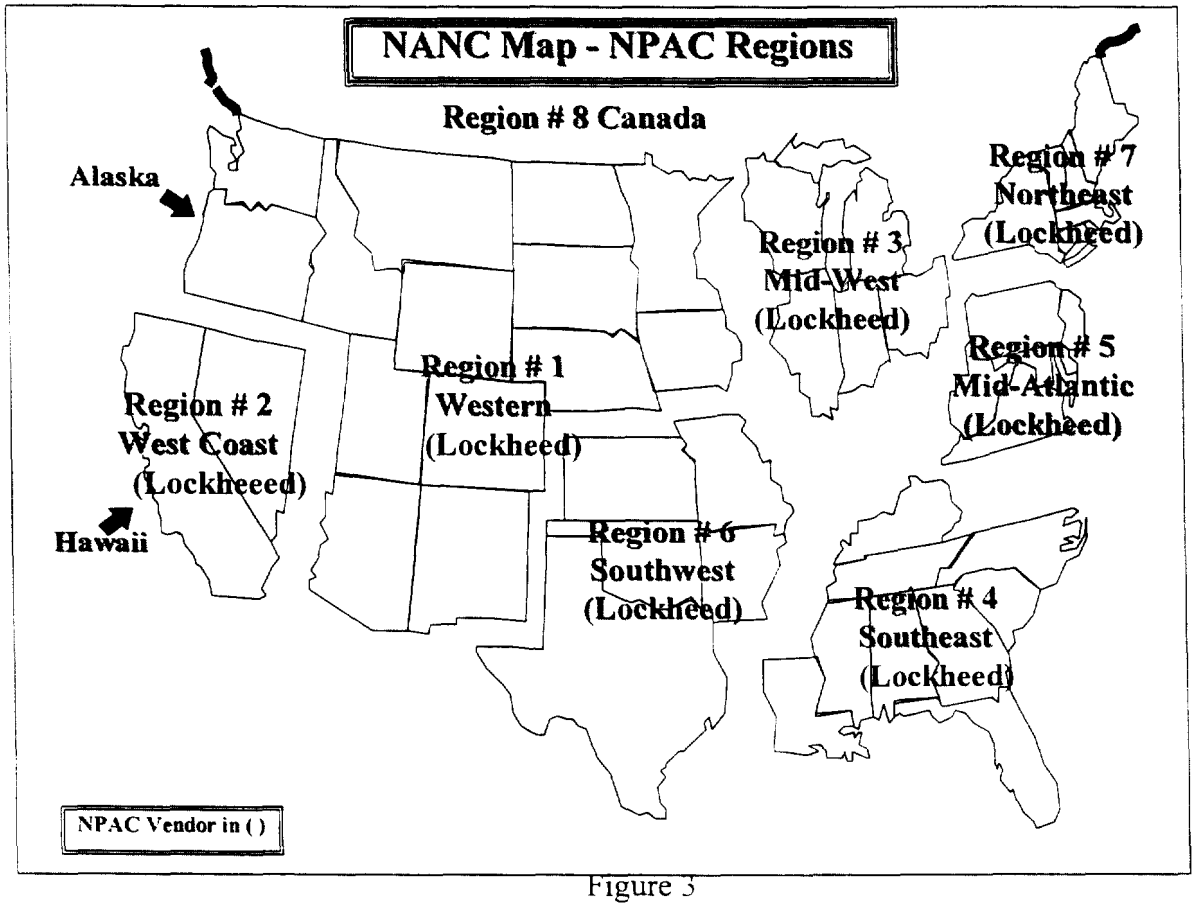

Figure 3

Factors considered in developing the NPAC regions were:

⇒ Economic efficiency and administrative simplicity -- On these factors, having multi-state NPACs is clearly superior to either an NPAC for each state or a single NPAC for the entire country.

⇒ Existing LLCs -- Each proposed region has an LLC which has chosen an NPAC vendor. The work at the state level should be built upon rather than re-invented.

⇒ Uniform sizes -- The sizes of the proposed regions are roughly comparable.

⇒ Existing regulatory structures -- State PUCs have formed regional associations that correspond to the proposed NPAC regions. These associations were formed to allow the PUCs to deal jointly with a Regional Bell Operating Company.

⇒ National responsibilities -- The NANC Architecture Task Force recognizes that Canada intends to create its own NPAC to serve all of Canada.

GEOGRAPHIC COVERAGE CHART

RECOMMENDED NPAC REGIONS	SPECIFIC STATES per NPAC REGION
Region # 1: WESTERN	Washington, Oregon, Montana, Wyoming, North Dakota, South Dakota, Minnesota, Iowa, Nebraska, Colorado, Utah, Arizona, New Mexico, Idaho, Alaska, Guam, Northern Mariana Islands
Region # 2: WEST COAST	California, Nevada, and Hawaii
Region # 3: MID-WEST	Illinois, Wisconsin, Indiana, Michigan, and Ohio (including the entire Cincinnati Bell Telephone operating territory)
Region # 4: SOUTHEAST	Florida, Georgia, North Carolina, South Carolina, Tennessee, Kentucky, Alabama, Mississippi, Louisiana, and the US Virgin Islands
Region # 5: MID-ATLANTIC	New Jersey, Pennsylvania, Delaware, Maryland, West Virginia, Virginia, and Washington, D.C.
Region # 6: SOUTHWEST	Texas, Oklahoma, Kansas, Arkansas, and Missouri
Region # 7: NORTHEAST	Vermont, New Hampshire, Maine, New York, Connecticut, Rhode Island, Massachusetts, and Puerto Rico
Region # 8: CANADA	All Provinces

Chart 1

1. The NANC Architecture Task Force recommends seven (7) NPACs to cover the 50 United States and the U.S. territories in the North American Numbering Plan Area (e.g. U.S. Virgin Islands and Puerto Rico). Refer to the Chart 1 for specifics.
2. Canada has selected an NPAC vendor and is in the process of creating an NPAC region to serve all of Canada.

10. NPA NXX Assignments - Ported Numbers

The NPA NXX XXXX's (Ten Digit Phone Numbers) for ported numbers are assigned to their respective NPAC regions. Uploads and downloads via the SOA and LSMS interfaces, respectively, are transmitted to and from their assigned NPAC platforms.

11. Virtual NPACs

Virtual NPACs are not precluded. If an NPAC vendor wins two or more regions, that vendor is not precluded from serving one or more of the regions on the same platform as long as the vendor meets all service requirements as specified in the contract or in End User Agreements.

11.1 NPAC SOA and LSMS Link(s)

Under the Virtual NPAC arrangement, Service Providers are not precluded from accessing the vendor's one NPAC platform for SOA and LSMS functionality via one or more physical links. Link capacity limitations, such as reliability and performance requirements will determine the quantity of physical SOA and LSMS link(s).

The service provider is responsible for contributing its appropriate share of the economic support to the NPAC vendor for each region in which it operates.

11.2 Point of Presence (POP)

The NPAC vendor will provide the physical links (SOA/LSMS) from the NPAC platform to each respective POP (Physical Facility) as identified by each regional LLC. Each service provider or its agent that directly connects to the NPAC shall be required to provide SOA and/or LSMS connectivity to the POP.

12. NPAC CERTIFICATION PROCESS

12.1 TECHNICAL REQUIREMENTS

12.1.1 IIS

The NPAC vendor(s) and any entity directly connecting to the NPAC platform are required to use the current NPAC SMS Interoperable Interface Specification (IIS) as adopted by NANC.

12.1.2 FRS

The NPAC vendor(s) and any entity directly connecting to the NPAC platform are required to use the current NPAC SMS Functional Requirement Specification (FRS) as adopted by NANC.

12.2 BUSINESS & ARCHITECTURE REQUIREMENTS

12.2.1 LLC (Limited Liability Company)

Each NPAC vendor has to be established under the Regional LLC. At a minimum, each respective Regional LLC has to keep its respective vendor in compliance with the Architecture requirements identified by NANC.

The sole purpose of the formation of a Limited Liability Corporation (LLC) is to create an entity to select and manage a neutral third party number portability administrator. Example activities of the LLC are the negotiation of the third party contract, prioritization of platform/software upgrades and on going direction of the third party's activities as described in the master contract. Membership of the LLC is not required for service providers to receive services from the neutral third party.

12.2.2 Competitively Neutral Pricing

The NPAC vendors have to be competitively neutral in pricing. It is the responsibility of each respective Regional LLC to ensure that competitively neutral pricing is consistent with FCC and state regulatory mandates.

12.2.3 Competitive Neutral Service

The NPAC vendor shall provide non-discriminatory level of service to all users.

12.2.4 NPAC User Criteria

NPAC Users are required to be facilities-based[9] telecommunications Service Providers/Interexchange Carriers that have been certified or licensed by the appropriate regulatory body or bodies or are under contract to a facilities-based telecommunications Service Provider/Interexchange Carrier to provide billing, routing, and/or rating for that respective Service Provider or interexchange carrier. The above criteria limit NPAC access to those with an operational need for NPAC service in order to provide local number portability and to address public safety concerns. These limitations are necessary to protect security of information and to minimize NPAC costs.

12.3 NANC

12.3.1 Architectural Change Approval Process

All NPAC/SMS architecture changes will be approved by NANC and recommended to the FCC for final approval. Implementation of these changes will be managed via each respective Regional LLC with its respective NPAC vendor. If NANC is dissolved, an oversight body should be identified or established to support/approve NPAC/SMS architecture changes.

12.3.2 Conflict Resolution

Any conflicts between Service Providers or LLCs in relation to NANC architecture will be escalated to NANC for conflict resolution.

12.4 LLC Merger Process

The merging of Regional LLC's is not precluded.

[9] Thee term facility based is used in this document to describe carriers who own or lease switching equipment.

12.5 NPAC Business Roles and Responsibilities

12.5.1 Neutral Third Party

The NPAC will be staffed by a neutral third party vendor.

12.5.2 NPAC Role

The primary role of the NPAC will be to assist users in obtaining access to the NPAC SMS. To perform this duty, the NPAC must support the following functional areas: administration, user support, and system support.

12.5.3 NPAC Administrative Functions

1. The administrative functions of the NPAC will include all management tasks required to run the NPAC.
2. The NPAC will work with the users to update data tables required to route calls for ported local numbers or required for administration.
3. The NPAC will be responsible for NPAC SMS logon administration, user access, data security, user notifications, and management.
4. The NPAC will be the primary contact for users that encounter problems with NPAC system features.
5. The user support function should also provide the users with a central point of contact for reporting and resolution of NPAC problems.
6. The system support function will provide coordination/resolution of problems associated with system availability, communications and related capabilities.
7. The NPAC hours of operation will be 24 hours a day, seven days a week.
8. The NPACs must meet the service level requirements as established by their respective LLCs.
9. The NPAC will provide reports to regulatory bodies as required.

12.5.4 Transition Guidelines

1. The NPAC will provide the same level of quality service during the period of transition to a new NPAC.
2. Transition to a new NPAC will be transparent to users.
3. Sufficient time will need to be established to allow each user to operate in a dual mode during transition to allow for installation of new NPAC links, testing of new NPAC links, problem resolution, installation at disaster recovery site, and de-installation of access links from old NPAC.

13. REFERENCE DOCUMENTS

(1) Illinois Commerce Commission Order 96-0089 dated March 13, 1996.
(2) FCC First Report and Order and Further Notice of Proposed Rulemaking; FCC 96-286; CC Docket 95-116, RM 8535; Adopted: June 27, 1996; Released: July 2, 1996.
(3) FCC First Memorandum Opinion And Order On Reconsideration; CC Docket No. 95-116, RM-8935; Adopted: March 6, 1997; Released: March 11, 1997.
(4) FCC Second Report And Order; CC Docket No. 95-116, RM 8535; Adopted: August 14, 1997; Released: August 18, 1997.
(5) CTIA Report on Wireless Number Portability; Revision 1.0; April 11, 1997.

Attachment A

N-1 CALL SCENARIOS

Refer to Paragraph 7.8 of the main document for the definition of N-1 carrier. Also refer to Section 8 of the main document for the local to local view of LNP call scenarios.

Refer to the figure on the last page of this attachment to help understand the call processing and routing described in the following call scenarios.

All Scenarios:

1. 816-724-2245 has changed service providers from LEC-1 to LEC-2.
2. NXX's 724 and 662 are considered ported NXX's.

WIRELINE LONG DISTANCE CALLS

SCENARIO A1 (Long Distance - LNP/LRN Capable IXC):

1. 507-863-2112 calls long distance to 816-724-2245 from outside the ported area.
2. LEC-3 routes the call to the caller's pre-subscribed carrier without any requirement to determine the LRN.
3. The pre-subscribed IXC (IXC-1) is the N-1 carrier, determines the LRN by performing a database dip, and routes the call to LEC-2. If IXC-1 does not have a direct connection to LEC-2, calls may be terminated through tandem agreement with LEC-1 *without change in the N-1 carrier responsibility*.

SCENARIO A2 (Long Distance - IXC without LNP/LRN capability):

1. 507-863-2112 calls long distance to 816-724-2245 from outside the ported area.
2. LEC-3 routes the call to the caller's pre-subscribed carrier without any requirement to determine the LRN.
3. The pre-subscribed IXC (IXC-2) is the N-1 carrier. Because IXC-2 does not have LNP/LRN capability, IXC-2 should have an agreement with LEC-1 (or LEC-2) to terminate default routed traffic, and LEC-1 (or LEC-2) becomes the carrier actually performing the LNP/LRN function to determine proper routing.

WIRELINE LOCAL CALLS FROM OUTSIDE THE PORTED AREA

SCENARIO A3 (Local call outside ported area - LNP/LRN Capable LEC):

1. 816-845-1221 makes a call within her local calling area, but from outside the ported area to 816-724-2245.
2. LEC-4 is the N-1 carrier and performs the database dip to determine the LRN and then routes the call to LEC-2. If no direct connection exists between LEC-4 and LEC-2, calls may be terminated through tandem agreement with LEC-1.

SCENARIO A4 (Local call outside ported area - LEC without LNP/LRN capability):

1. 816-845-1221 makes a call within her local calling area, but from outside the MSA and ported area to 816-724-2245.
2. LEC-4 is the N-1 carrier and at some time may be required to perform the database dip to determine the LRN to route the call to LEC-2. Until that time, LEC-4 should arrange with LEC-1 (or LEC-2) to terminate default routed calls.

OTHER LOCAL CALLS

SCENARIO A5 (All calls originating from LEC-2 destined outside the ported area)

1. LEC-2 has the responsibility to establish connection agreements to route all originating local calls from ported or non-ported subscribers served by LEC-2. LEC-2's local calling area in some states may be different than LEC-1's local calling area.
2. LEC-2 has the responsibility to establish connection agreements to route all long distance calls originated from ported or non-ported subscribers served by LEC-2.

WIRELESS LONG DISTANCE CALLS

SCENARIO A6 (Wireless long distance call outside ported area - Non-conforming IXC):

1. Mobile user 816-234-7711 calls long distance to 816-724-2245 from inside or outside the MSA.
2. CMRS-1 is not obligated to determine the LRN and therefore routes the call to an IXC, typically via a tandem.
3. The Inter-exchange carrier (IXC-2) is the designated N-1 carrier, and has the responsibility to determine the LRN by performing a database dip and routing the call to LEC-2. However, because IXC-2 does not have LNP/LRN capability, IXC-2 should have an agreement with LEC-1 (or LEC-2) to terminate default routed traffic, and LEC-1 (or LEC-2) performs the actual N-1 function.

SCENARIO A7 (Wireless long distance call outside ported area - Conforming IXC):

1. Mobile user 816-234-7711 calls long distance to 816-724-2245 from inside or outside the MSA.
2. CMRS-1 is not obligated to determine the LRN and therefore routes the call to an IXC, typically via a tandem.
3. The Inter-exchange carrier (IXC-1) is the designated N-1 carrier, and has the responsibility to determine the LRN by performing a database dip and routing the call to LEC-2. If IXC-1 does not have a direct connection to LEC-2, calls may be terminated through tandem agreement with LEC-1.

WIRELESS LOCAL CALLS

SCENARIO A8 (Wireless local call outside ported area - Non-conforming CMRS):

1. Mobile user 816-234-7711 makes a call within her local calling area, but from outside the MSA and the ported area to 816-724-2245.
2. CMRS-1 is the designated N-1 carrier. CMRS-1 should establish a business arrangement with LEC-1 (or LEC-2) to terminate default routed calls, and then LEC-1 (or LEC-2) performs the actual N-1 carrier function.

SCENARIO A9 Wireless local call outside ported area - Conforming CMRS):

1. Mobile user 816-234-7711 makes a call within her local calling area, but from outside the MSA and the ported area to 816-724-2245.
2. CMRS-1 is the designated N-1 carrier and performs the database dip to determine the LRN and then routes the call to LEC-2. If no direct connection exists between CMRS-1 and LEC-2, calls may be terminated through a tandem agreement with LEC-1.

Simplified Trunking and SS7 Diagram for Connections to Ported Area

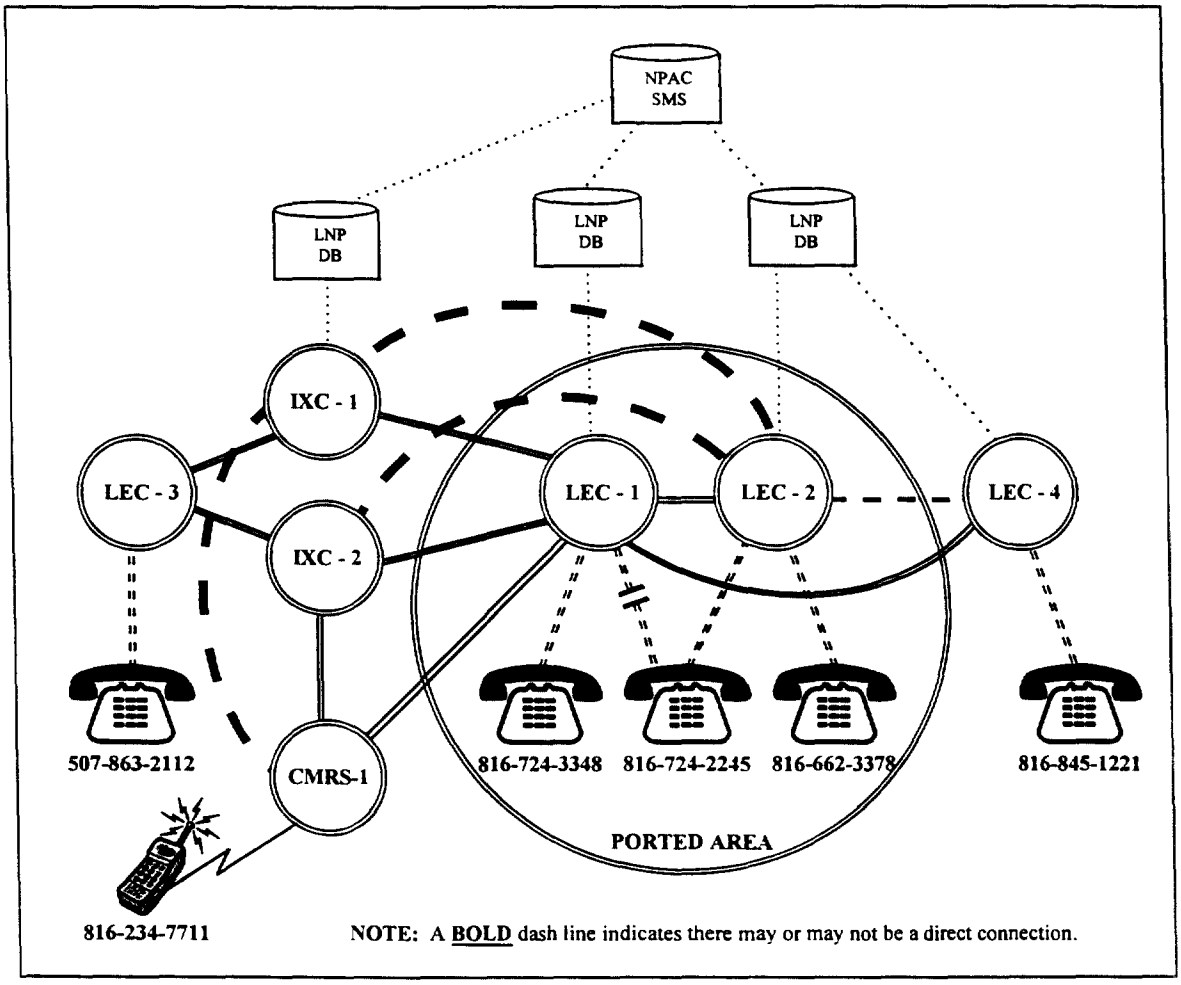

Figure A-1

SUPPORT OF NATION WIDE ROAMING

The NANC recommends that the FCC clarify for CMRS providers the words in the Commission's LNP orders "including the ability to support roaming, by June 30, 1999" [1] for wireless carriers not involved in service provider portability but involved in nation wide roaming.

Unlike wireline carriers, wireless providers must alter the fundamental model by which wireless services are delivered to subscribers with ported numbers. For example, to preserve existing wireless registration and roaming record reconciliation processing (essential to the wireless call processing paradigm) for both ported and non-ported subscribers, wireless carriers (for example, existing AMPS, TDMA and CDMA providers) must move from a single Mobile Identification Number ("MIN") to multiple identifiers. Today, the MIN serves as both the mobile directory number and the mobile station identifier; but to support LNP, the MIN must be separated into

- a Mobile Directory Number ("MDN") that will serve as the telephone number; and
- a Mobile Station Identifier ("MSID") that will identify the physical mobile station.

Although Local Number Portability initially is required only in the top 100 Metropolitan Statistical Areas, all MIN based CMRS carriers, even those in smaller markets, will have to perform network upgrades if they participate or want to participate in automatic roaming agreements. If a wireless provider fails to alter its network properly, it may not be able to recognize the MDN (Mobile Directory Number) of a ported subscriber that attempts to register on its system.

Prior to portability, the Wireless Service Provider (WSP) could assume that the MIN value sent by the Mobile Station was the same as its MDN. The serving switch requires the MDN to populate the Calling Party Number parameters in signaling and billing records. If the subscriber has ported, the MIN may not be the same as the MDN and using the MIN as the calling party number may be incorrect. Services which rely on the information may not function properly. These include:

- automatic callback, calling number, and calling name delivery;

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[1] First Report and Order 11 FCC Rcd at 8440; Telephone Number Portability, CC Docket No. 95-116, RM-8535, First Memorandum Opinion and Order on Reconsideration, FCC 97-74, at ¶ 127 (rel. March 11, 1997).